What is claimed is:

1. A treatment chamber for deactivating microorganisms in a fluid, the treatment chamber comprising:

a housing comprising a fluid inlet for receiving fluid to be treated and a fluid outlet for allowing treated fluid to be retrieved; and

an electrode assembly within the housing, the electrode assembly comprising at least two electrodes having opposing convex electrode surface sections for forming an electrode gap there between, wherein a continuous and substantially uniform electric field per unit cross section is generated by the application of a voltage pulse;

the electrode gap defining a biconcave treatment zone through which the fluid, under influence of gravity, flows in a steady, uniform, non-turbulent manner, the treatment zone including the most intense electric field generated by the electrode assembly for treatment of the fluid and where at least one of the opposing electrode surfaces controls the spatial distribution and dynamics of the flow of the fluid to be treated within the treatment zone.

2. The treatment chamber of claim 1 wherein the intensity of the electric field decreases in a smooth continuous decrease in intensity of electric field in either direction away from a mid section of the treatment zone when the voltage pulse is applied to the electodes.

3. The treatment chamber of claim 2, wherein one of the electrodes is an inner electrode and the other of the electrodes is an outer electrode, the outer electrode circumscribing the inner electrode.

4. The treatment chamber of claim 3, wherein the convex section of the outer electrode is substantially toroidal and the convex section of the inner electrode is substantially ellipsoidal.

5. The treatment chamber of claim 4, wherein the convex section of the inner electrode is substantially spherical.

6. The treatment chamber of claim 3, wherein the convex section of the outer electrode comprises a plurality of adjacent substantially ellipsoidal surfaces and the convex section of the inner electrode is substantially ellipsoidal.

7. The treatment chamber of claim 6, wherein the convex section of the inner electrode is substantially spherical.

8. The treatment chamber of claim 4, wherein the treatment zone is annular.

9. The fluid treatment chamber of claim 8, where the treatment zone comprises a zone inlet for receiving untreated fluid, a zone outlet for dispensing treated fluid, and a primary treatment zone for treating the untreated fluid, the primary treatment zone being located in the midsection of the treatment zone, between the zone inlet and the zone outlet.

10. The treatment chamber of claim 9, wherein a top surface of the inner electrode receives the fluid from a fluid source and conveys it radially by overflow to circumfuse the surface of the inner electrode, thus introducing the fluid into the zone inlet and the primary treatment zone.

11. The fluid treatment chamber of claim 10, wherein electric field's intensity gradually increases from the zone inlet towards the primary treatment zone and then decreases gradually from the primary treatment zone towards the zone outlet.

12. The fluid treatment chamber of claim 10, wherein the inner electrode includes a fluid bore extending there through along its polar axis, the fluid bore being configured such that the treatment zone is in fluid communication with the fluid inlet.

13. The fluid treatment chamber of claim 12, wherein the inner electrode is substantially planar on its top surface and facilitates continuous, even and radial communication of the fluid from the fluid bore to the zone inlet.

14. The fluid treatment chamber of claim 10, wherein the inner electrode comprises a depression on its top surface for receiving the fluid from the fluid source.

15. A method for pasteurizing a fluid comprising the steps of:

generating an electric field between a pair of electrodes, the electrodes having substantially convex opposing surface sections defining a biconcave treatment zone, the electric field having its greatest intensity within the treatment zone;

inactivating microorganisms in the fluid by passing the fluid through the biconcave treatment zone under the influence of gravity, thereby exposing the fluid to the electric field.

16. The method of claim 15, wherein the pair of electrodes comprises an outer electrode circumscribing an inner electrode.

17. The method of claim 16, wherein the outer electrode section is substantially toroidal and the inner electrode section is substantially ellipsoidal.

18. The method of claim 17, wherein the treatment zone comprises a zone inlet for receiving untreated fluid, a zone outlet for retrieving treated fluid and a primary treatment zone for treating the untreated fluid, the primary treatment zone being located in the midsection of the treatment zone, between the zone inlet and the zone outlet.

19. The method of claim 18, wherein the electric field has its greatest intensity within the primary treatment zone.

20. The method of claim 19, wherein the electric field is continuous and substantially uniform per unit cross sectional plane in the zone inlet and zone outlet, the intensity of which increases smoothly from the zone inlet towards the primary treatment zone and decreases smoothly from the primary treatment zone to the zone outlet.

21. The method of claim 20 further comprising the steps of:

retrieving the fluid from a fluid source and conveying it to the zone inlet; and

retrieving treated fluid after it has passed through the zone outlet.

22. The method of claim 21, wherein a top surface of the inner electrode receives the fluid from a fluid source and conveys it radially by overflow to circumfuse the surface of the inner electrode in order to introduce the fluid into the zone inlet.

23. The method of claim 22, wherein the inner electrode includes a fluid bore extending there through along its polar axis, the fluid bore being configured such that the treatment zone is in fluid communication with the fluid source via a fluid inlet.

24. The method of claim 23, wherein the inner electrode is substantially planar on its top surface and facilitates continuous, even and radial communication of the fluid from the fluid bore to the zone inlet.

25. The method of claim 22, wherein the inner electrode comprises a depression on its top surface for receiving the fluid from the fluid source and conveying the received fluid in a smooth, steady and uniform overflow radially toward the zone inlet.

26. The method of claim 21 further comprising a pretreatment step, the pretreatment step for adjusting the temperature of the fluid to a predefined level prior to exposing the fluid to the electric field.

27. The method of claim 26, wherein the temperature of the fluid is increased by irradiating the fluid with infrared radiation.

28. A pasteurization kit for treating a fluid comprising

at least two electrodes for generating an electric field there between, the electrodes having convex electrode surface sections configured such that when assembled in a housing, the convex electrode surface section opposing each other

defining there between a biconcave space for use as a treatment zone for treatment of the fluid and one of the electrodes is configured such that the fluid will circumfuse its surface in order to be introduced into the treatment zone.

29. The pasteurization kit of claim 26 further comprising the housing including a fluid inlet for receiving fluid to be treated and a fluid outlet for allowing treated fluid to be retrieved.

30. A fluid treatment chamber for use in the inactivation of microorganisms in fluids, the fluid treatment chamber comprising an electrode assembly having at least two electrodes, the electrodes having opposing convex electrode surface sections forming an electrode gap consisting of a biconcave annular space wherein there is simultaneously produced:

a most intense electric field generated by the electrode assembly at its midsection;

a substantially uniform electric field per unit cross section of the annular space; and

a smooth continuous decrease in intensity of electric field in either direction away from the mid section of the annular space by the application of a voltage pulse.